

WEDNESDAY, OCTOBER 27<sup>TH</sup>, 1880.

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W. J. Stephens, Esq., M.A., Vice President in the Chair.

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MEMBERS ELECTED.

Lieut. C. E. Beddome of Hobart Town.

The Rev. G. F. Macarthur of Parramatta.

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DONATIONS.

Jahresbericht des Vereins für Naturwissenschaft zu Braunschweig, 1880.

Royal Society of New South Wales, Journal and Proceedings, 1879.

South Australian Institute, Annual Report, 1879-1880.

Bulletin of the Museum of Comparative Zoology, Harvard College, Massachusetts, Vol. VII., No. 1.

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PAPERS READ.

ON SOME NEW AUSTRALIAN MARINE ISOPODA—PART I.

BY WILLIAM A. HASWELL, M.A., B.Sc.

[Plates XVI.-XIX.]

The Edriophthalmata of the Australian Coast present probably on the whole, as numerous and prominent peculiarities as any other section of the marine fauna. Among the Amphipoda the genera *Cyproidia* and *Teilus*, are perhaps the most remarkable, and both must be regarded as occupying positions separated by considerable intervals from all other described forms; but almost equally characteristic are such as *Amaryllis*, *Glycera*, *Xenocheira*, *Polycheria*, and *Wyvillea*; though these find near allies among genera from other regions. Among the Isopoda of Australia, there are probably, almost as many peculiar and aberrant forms as among the Amphipoda, though the variety of species and the

number of individuals are by no means so great in the former group as in the latter. As with the Amphipoda the home of the Australian non-parasitic marine Isopoda is among the luxuriant algæ and sponges in the temperate zone; the abundance and variety of the invertebrate life populating these miniature forests, in Port Jackson for example, being extremely great, and the Edriophthals forming one of the most striking features. Further north both Amphipoda and Isopoda become very much rarer; among the algæ on the shores of Moreton Bay I have been able to detect but a very few species, and in Port Denison they become extremely rare.

Genus CODONOPHILUS, (*novum*).

Body slightly convex, abdomen markedly narrower than the thorax, with six free articulations; terminal segment lamellar; epimeræ distinct though small; head rather narrower than the first segment of the thorax. Eyes very large; antennæ sub-equal, stout, inserted under the head. Mandibles with elongate palpi. Maxillipedes small, operculiform, three-jointed. Thoracic limbs all anchor-like, with long dactyla. Posterior abdominal appendages free, uniramous.

*Codonophilus argus*, *sp. nov.*, Plate XVI., fig 1.

Eyes very large, extending on the under surface of the head. Thoracic appendages sub-equal, all with much elongate, curved and pointed dactyli. Ramus of abdominal appendages falciform with a few scattered cilia. Terminal segment scale-like, acuminate. Length  $5/32$  in.

Found under the bell of a *Rhizostoma* in Port Jackson.

This species approaches *Agathoa*, Dana, in many respects; but differs from it in the sudden narrowing of the body at the commencement of the abdomen, and the uniramous character of the caudal appendages.

*Rocinela vigilans*, *sp. nov.*, Plate XVI., fig. 2.

Posterior thoracic segments broader than the anterior; epimera produced behind to an acute point. Terminal segment shield-like, smooth, margins entire, ciliated. Eye occupying all the upper surface of the head, and extending on its under surface on either side nearly to the margins of the buccal orifice. Antennæ separated at the base by a short frontal process; the superior about half the length of the inferior, the two basal segments of its peduncle together equal in length to the third segment; the flagellum longer than the peduncle, composed of about fifteen articuli; inferior pair with the flagellum more than twice the length of the peduncle. Maxillipedes with the terminal joints plate-like, a strong spine at the internal and distal angle of the first. Posterior thoracic limbs rather longer than the anterior pairs; femora long-ovate; dactyla rather short. Rami of caudal appendages unequal, the inner longer and broader than the outer; both ovate, obtusely pointed, ciliated on the margins. Length 1 inch.

*Hab.* Holborn Island, near Port Denison, 20 fathoms (a single specimen).

*Spharroma aspera*, *sp. nov.*, Plate XVI., fig. 3.

Body covered with larger and smaller granules. Head transverse, rounded in front, with a narrow lobe between the bases of the antennæ; first segment of the thorax as broad as the four following; a slight depressed line marking off the epimera. First segment of the abdomen with distinct lines marking the position of the coalesced segments, a prominent tubercle on the posterior margin on either side of the middle line. Last abdominal segment sub-triangular in contour, dilated anteriorly and ornamented with two slightly convergent irregular rows of minute tubercles; the apex rounded, with a rectangular notch on either side near the extremity. Caudal appendages with the rami rather unequal, the outer the smaller, both broad, sub-acute. Inner antennæ

very broad at the base; flagellum with twelve segments. Outer antennæ equalling the inner in length; flagellum with eight segments. Length  $\frac{1}{4}$  inch.

*Hab.* Port Jackson.

*Sphæroma* (?) *anomala*, *sp. nov.*, Plate XVI., fig. 4.

Body smooth, strongly convex, frontal region prominent; last segment of the thorax longer than the preceding five, produced in the middle line behind to an obtuse angle; first abdominal segment with a broad, shallow excavation in its posterior border, defined on either side by a minute, spinous process. Last abdominal segment with a transverse row of one central, larger, and two lateral, smaller tubercles; apex sub-acute, armed below on either side with a minute acute process. Rami of abdominal appendages ovate, sub-acute. Length  $\frac{5}{16}$  inch.

*Hab.* Port Jackson.

This species approaches *Isocladus* in the form of the last segment of the thorax, and *Cymodocea* in that of the last segment of the abdomen.

*Sphæroma lævis*, *sp. nov.*, Plate XVI., fig. 5.

Thorax nearly as broad as long, the first segment longer than the others, all the segments grooved and bent slightly backwards laterally—the lateral and posterior extremities of the segments subacute. Terminal segment of the abdomen smooth, convex, rounded distally. Caudal appendages narrow-lanceolate, blunt. Length  $\frac{3}{16}$  inch.\*

*Hab.* Bondi, near Sydney, on sandy beach.

*Cymodocea pubescens*, *Milne-Edwards*, (*sp.*) Plate XVII., fig. 1.

*Sphæroma pubescens*, *M.-Edw.*, *Hist. nat. Crust.* III., 209.

Strongly convex, tomentose. Frontal lobe obtuse. Antero-lateral angle of the first thoracic segment produced below the eye into a triangular acute lobe; postero-lateral angle similarly

produced, rounded. Lateral angles of the following segments of the thorax produced, curved backwards, sub-acute. Penultimate segment of the abdomen produced behind into a rounded tubercle; a pair of sub-conical elevations on the last segment of the abdomen; notch very shallow, quadrangular; lobe pointed. Rami of caudal appendages rather unequal, both extending beyond the extremity of the segment, the outer the longer, the apex acute, curved outwards, the outer border with a conical tooth; the inner sub-acute. Basal joint of superior antennæ very broad, notched distally for the reception of the second joint. Flagellum of inner antennæ with twenty-seven articuli; that of the outer pair with twenty-one. Length of longest specimen one inch

*Hab.* Port Jackson etc.; common.

*Cymodocea aculeata*, *sp. nov.*, Plate XVI., fig. 6.

Body strongly convex, finely granular. First segment of the thorax twice as broad as the rest. Last segment of the abdomen with two prominent tubercles situated near the middle line, and two smaller ones external to them. Terminal notch very deep, quadrangular, the lateral processes triangular, central process very prominent, projecting slightly beyond the extremity of the lateral. Inner antennæ with the basal joints very broad and compressed, flagellum with twenty-two to twenty-five articuli. Outer antennæ rather longer than the superior pair; flagellum with about fourteen to sixteen articuli. Rami of caudal appendages sub-equal, outer ramus sub-ovate, with the outer border straight, the inner convex; inner ramus oblong, emarginate. Length  $9/16$  inch.

*Hab.* Port Jackson.

*Cymodocea mammifera*, *sp. nov.*, Plate XVIII., fig. 1.

Surface nearly smooth. Frontal lobe very small. Lateral angles of the thoracic segments rather blunt. Penultimate segment of the abdomen with two very small rounded elevations near its

posterior margin. Second segment of the abdomen with a pair of low, mammiform elevations towards its middle; central lobe triangular, longer than those bordering the notch. Rami of caudal appendages sub-equal, pointed, sparsely ciliated. Length  $\frac{3}{8}$  inch.

*Hab.* Port Denison, Queensland.

*Cilicæa tenuicaudata*, *sp. nov.*, Plate XVII., fig. 2.

Surface obscurely granular. Postero-lateral angles of the segments of the thorax sub-acute. Penultimate abdominal segment obscurely tubercular; median spine very long, extending far beyond the extremity of the abdomen, narrow, blade-like, bifurcate at the tip. Last segment of the abdomen with two rounded mammiform elevations; a deep mesial excavation at its posterior extremity. Peduncle of caudal appendages with a short spine representing the internal ramus; outer ramus ciliate, narrow, slightly curved backwards, extending rather beyond the extremity of the mesial spine, bifurcate at the tip. Flagella of antennæ each with about ten articuli. Length  $\frac{5}{16}$  inch.

*Hab.* Port Jackson.

*Cilicæa crassicaudata*, *sp. nov.*, Plate XVII., fig. 3.

Surface finely granular. Postero-lateral angles of the thoracic segments blunt. Penultimate segment of the abdomen slightly swollen; median spine rather short, not extending beyond the middle of the uropoda, thick, clothed with short cilia, apex entire, blunt. Last segment of the abdomen with two mammiform elevations; its posterior extremity deeply notched; notch with a low mesial lobe. Basal segment of the caudal appendages with a blunt process on its inner border; mobile ramus sub-cylindrical, ciliated, curved inwards, extending beyond the extremity of the median spine, apex rounded, entire; immobile ramus rudimentary. Length  $\frac{1}{2}$  inch.

*Hab.* Holborn Island, 20 fathoms (a single specimen).

*Calyptura carnea*, *gen. et sp. nov.*, Plate XVII., fig. 4.

Moderately convex, granulated. Head of moderate size, rather broader than long, eyes oval, received into a notch in the anterior border of the first segment of the thorax. First segment of the thorax broader than the succeeding five; lateral angles blunt. Last segment of the thorax produced into a broad shield extending beyond and concealing the abdomen, narrowing behind to a blunt apex, convex anteriorly, nearly flat in its posterior half, but with a slight median longitudinal ridge. Abdomen short, bisegmented, concealed by the last thoracic segment; last segment with a quadrangular median posterior notch, in the centre of which is a squarish lobe. Caudal appendages extending slightly beyond the extremity of the last thoracic segment; rami subequal, ciliated on the edges, the inner the longer, truncate, with an angular tooth on its inner border; outer ovate, pointed, the extremity slightly curved outwards. Inner antennæ broad at the base, separated by a small frontal lobe, flagellum of eleven or twelve articuli. Outer antennæ longer than the inner, flagellum of fourteen or fifteen articuli. Colour crimson. Length  $\frac{1}{2}$  inch.

*Hab.* Port Jackson; common.

Genus *HALIOPHASMA* (*novum*).

Body sub-cylindrical, depressed, thoracic segments sub-equal. Inner antennæ much shorter than the outer, with multi-articulate flagellum. Mandibles with a palp. Maxillipedes small, sub-operculiform. First pair of thoracic limbs large, sub-chelate, the rest simple or the second imperfectly subchelate. Last pair of abdominal appendages broad, operculiform, biramous—the inner ramus biarticulate, the outer scale-like. Terminal segment squamiform.

Differs from *Paranthura* in the possession of well-developed flagella in both pairs of antennæ or the outer pair only, and in the form of the second and third pairs of pereopoda.



*Haliophasma purpurea*, *sp. nov.*, Plate XVIII., fig. 2.

Head and first thoracic segment flattened; last thoracic segment shorter than the others. Inner antennæ as long as the head, slender; flagellum rudimentary. Outer antennæ nearly twice as long as the inner pair; the peduncle very stout, the flagellum with seven articuli. First pair of thoracic limbs very thick, with stout, ovate propodos and strong dactylos; the following pairs all non-subchelate rather short, decreasing in size posteriorly. Terminal segment rounded at the apex, with three longitudinal dorsal ridges. Colour reddish-purple. Length  $\frac{7}{8}$  in.

*Hab.* Port Jackson.

*Haliophasma maculata*, *sp. nov.*, Plate XVIII., fig. 3.

Head and first segment of the thorax slightly flattened. Inner antennæ as long as the head; flagellum with about twenty articuli. Outer antennæ twice as long as the inner; flagellum with numerous articulations. First pair of thoracic limbs large, similar to those of the preceding species; following pairs rather long, the first two prehensile. Terminal segment not longitudinally ridged. Terminal segment, caudal appendages and caudal scale fringed with long hairs. Colour light yellow, with black blotches. Length  $\frac{3}{4}$  inch.

*Hab.* Port Jackson.

*Paranthura australis*, *sp. nov.*, Plate XVIII., fig. 4.

Eyes very minute. Antennæ extremely short, with rudimentary flagella, the internal pair rather the longer. First pair of thoracic limbs with the carpus somewhat produced superiorly and distally; propodos ovate, dilated proximally; the palm armed with a row five stout spinules. Second pair rather smaller than the first and of similar shape; palm armed with six ciliated spinules. Third pair smaller than the second. Caudal scales sub-circular; ramus



of caudal appendages ovate, sub-acute, hairy. Terminal segment rounded. Length about  $\frac{1}{2}$  an inch.

*Hab.* Port Jackson.

*Paranthura* (?) *crassicornis*, *sp. nov.*, Plate XVIII., fig. 5.

Eyes very small. Internal antennæ very short, about half the length of the head; flagellum with several short articuli. External antennæ twice as long as the internal pair; flagellum thick, twice as long as the peduncle, composed of numerous articuli. First pair of thoracic limbs larger than the others; propodos ovate. Second and third pairs rather smaller than the first, and of similar shape. Following pairs sub-equal, with the dactylos long and falciform. Length  $\frac{5}{16}$  inch.

*Hab.* Port Jackson.

Differs from *Paranthura* in the form of the outer antennæ.

#### GENUS *STENETRIUM* (*novum*).

Body dorso-ventrally compressed; abdomen short, one-jointed. Head with a short rostrum. Antennæ inserted on the anterior margin of the head; internal pair very short; external pair very long, both with well-developed flagella. Mandibles provided with a palp. Maxillipedes expanded, operculiform. First pair of thoracic limbs with a large prehensile manus; following pairs ambulatory. First pair of abdominal appendages broad, operculiform. Caudal appendages biramous, inserted on the border of the shield-like abdomen near the extremity.

*Stenetrium armatum*, *sp. nov.*, Plate XIX., fig. 1.

Cephalon armed on either side with a prominent dorso-ventrally compressed, acute spine, curved outwards and forwards. Antero-lateral angles of the first thoracic segment produced forwards, acute; those of the second segment slightly produced; postero-lateral angle of the penultimate segment slightly produced backwards. Penultimate segment of the abdomen rudimentary;

second as long as the three last thoracic segments, its lateral border marked behind the middle by an angular notch, bounded behind by an inconspicuous acute spine; a short, rounded mesial lobe at the posterior extremity. Eyes narrow, oblique. Internal antennæ scarcely as long as the three basal joints of the external pair, flagellum longer than the peduncle. External antennæ about four times as long as the inner pair, longer than the body; basal joint of the peduncle produced externally and distally into a slender acute process; second joint similarly produced, the process ending in a hair-like appendage; flagellum about equalling the peduncle in length, formed of numerous articuli which are very short proximally and increase slightly in length towards the distal end. Maxillipedes with the four basal joints forming a broad operculum; terminal joint well-developed. First pair of thoracic limbs in the male very large; ischium, meros and carpus sub-equal, the meros produced infero-distally into an acute process; propodos large, irregularly ovate, palm defined by a long acute spine, and armed in addition with a bifid denticle situated about its middle; dactylos powerful, sub-acute. Following pairs of thoracic limbs sub-equal. Inner ramus of caudal appendages longer than the outer, both lanceolate, armed laterally with slender hairs. Length  $\frac{1}{2}$  inch.

The female has the first pair of thoracic limbs smaller than in the male, the palm unarmed, concave, defined by a projecting acute angle.

*Hab.* Port Jackson, among algæ a few feet below low-water mark.

*Stenetrium inerme*, *sp. nov.*, Plate XIX., fig. 2.

Head transverse, rostrum sub-acute. Lateral borders of anterior thoracic segments not much produced, bilobed. Lateral border of last abdominal segment entire; with an obscure, rounded, mesial lobe. Eyes rounded. Internal antennæ very slender, less than a quarter of the length of the external pair; basal joint of

the peduncle very short and broad, second narrower and slightly longer, third scarcely distinguishable from the flagellum; flagellum about twice as long as the peduncle. External antennæ longer than the body, the three basal joints of the peduncle short and stout, the third the longest of the three and provided distally and externally with a short, acute spine; flagellum shorter than the peduncle. Penultimate joint of the maxillipedes not expanded. First pair of thoracic limbs large; propodos sub-triangular in outline, the palm transverse, concave, armed with a few short bristles, and defined by a prominent acute tooth; dactylos much longer than the palm. Following pairs of thoracic limbs decreasing slightly in length posteriorly. Caudal appendages with the inner ramus longer than the outer, both broad-lanceolate, truncate, with one or two lateral notches and a few long, slender setæ. Length about  $5/16$  inch.

*Hab.* Port Jackson.

#### EXPLANATION OF PLATES XVI.-XIX.

In all the figures *a*—inner antennæ; *b*—outer antennæ; *c*—first pair of pereopoda; *d*—mandibles; *e*—first pair of maxillæ; *f*—second maxillæ; *g*—maxillipedes; *x*—terminal segment or caudal appendages.

#### Plate XVI.

- Fig. 1. *Codonophilus argus*, five times the natural size.  
 ,, 2. *Rocinela vigilans*, natural size.  
 ,, 3. *Sphæroma aspera*, seven times the natural size.  
 ,, 4. *Sphæroma anomala*, four times the natural size.  
 ,, 5. *Sphæroma levis*, five times the natural size.  
 ,, 6. *Cymodocea aculeata*, twice the natural size.

#### Plate XVII.

- Fig. 1. *Cymodocea pubescens*, natural size.  
 ,, 2. *Cilicæa tenuicaudata*, three times the natural size.  
 ,, 3. *Cilicæa crassicaudata*, three times the natural size.  
 ,, 4. *Calyptura carnea*, four times the natural size.

## Plate XVIII.

- Fig. 1. *Cymodocea mammifera*, three times the natural size.  
 ,, 2. *Haliophasma purpurea*, three times the natural size.  
 ,, 3. *Haliophasma maculata*, three times the natural size.  
 ,, 4. *Paranthura australis*, nine times the natural size.  
 ,, 5. *Paranthura* (?) *crassicornis*, five times the natural size.

## Plate XIX.

- Fig. 1. *Stenetrium armatum*, seven times the natural size.  
 ,, 2. *Stenetrium inerme*.

NOTES ON RECENT MOLLUSCA FOUND IN PORT JACKSON AND ON  
 THE COAST OF NEW SOUTH WALES AND OTHER LOCALITIES  
 WITH THEIR SYNONYMS.

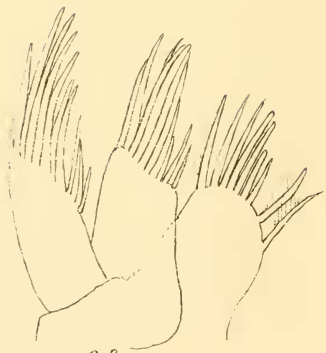
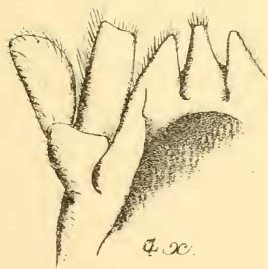
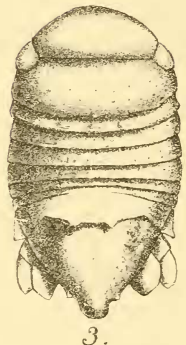
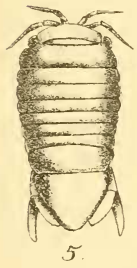
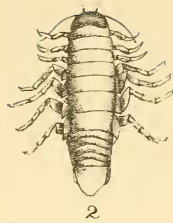
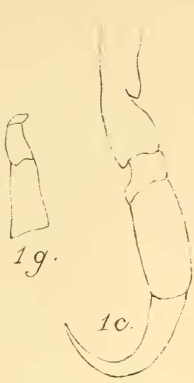
BY J. BRAZIER, C.M.Z.S., &c.

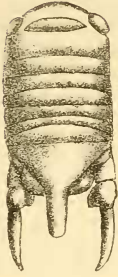
## 1. POLYTROPA STRIATA.

*Buccinum striata*, Martyn, Univ. Conch., pl. 7, ed Chenu., pl. 3, fig. 1. *Buccinum orbita-lacunosa*, Chem., Conch. Cab., X., fig. 1473; *Buccinum lacunosum*, Brug. *Purpura rugosa*, Lam., An. Sans Vert., Vol. VII., p. 242. *Purpura rupestris*, Valenciennes; *Purpura succincta*, var., Reeve, Conch. Icon., without figure. *Polytropha striata*, Hutton, in Jour de Conch. 1878, p. 19, and Manual of the New Zealand Mollusca, 1880, p. 56.

*Hab.* Point Piper, Port Jackson; Wallaroo, South Australia; Bondi Bay (*W. H. Hargraves*).

This somewhat common species is recorded by Professor Hutton from Chatham Islands, Auckland Islands, Auckland to Stewart's Island, and South Australia; my specimen was obtained twenty years ago at Wallaroo, by my kinsman Mr. R. C. Rossiter. Mr. Angas could not have found it, as there is no record of it in his Molluscan Fauna of South Australia, (Proc. Zool. Soc., 1865.)





3.



2.



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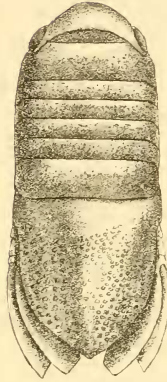
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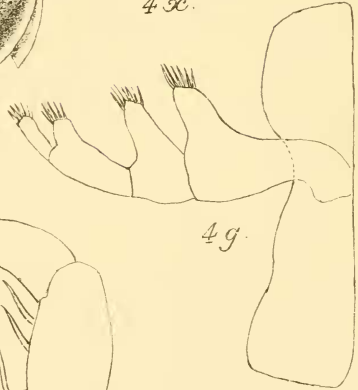
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4.



4x.



4g.



4d.



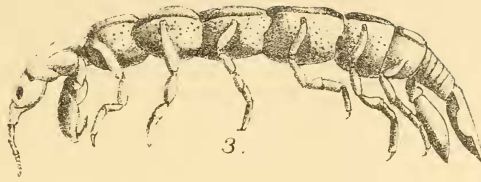
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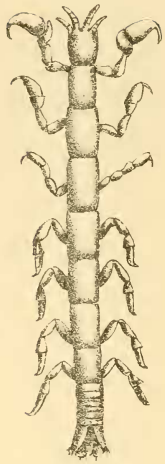
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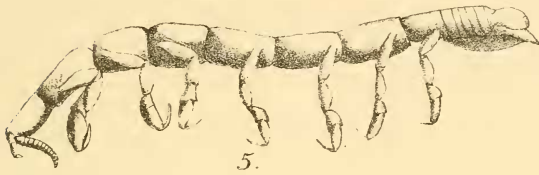
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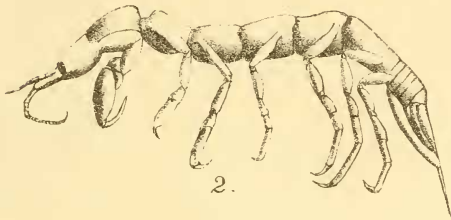
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4.



5.



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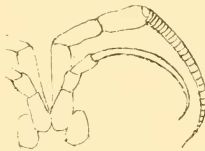
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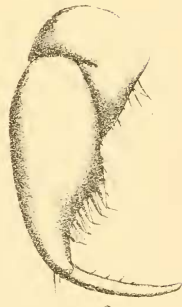
4 a.



1.



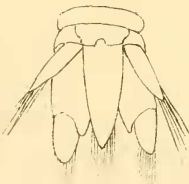
2 a.



2 c.



1 c.



2 x.



